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(71) Applicant (for all designated States except US): **QINETIQ LIMITED [GB/GB]; 85 Buckingham Gate, London SW1E 6PD (GB).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **JENKINS, Richard, M. [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room PA109, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB). MCNIE, Mark, E. [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room**

B9A4, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB). MCQUILLIAN, James [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room DX101A, St Andrews Road, Malvern, Worcestershire WR14 3PS (GB). STACEY, Craig, D. [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room PA110, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB).

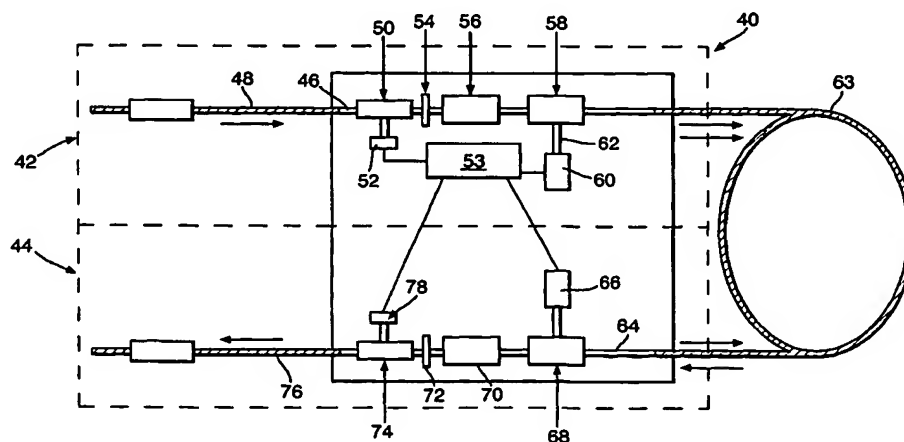
(74) Agent: **DUNN, Paul, E.; QinetiQ Ltd, IP Formalities, Cody Technology Park, A4 Building, Room G016, Ively Road, Farnborough, Hampshire GU14 0LX (GB).**

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(54) Title: **OPTICAL AMPLIFIER**



(57) Abstract: Optical circuits for optical amplifier input and output stages are described. The input stage circuit (42) comprises a first optical waveguide (46) for carrying a signal beam to be amplified, a second optical waveguide (62) for carrying a pump beam, a beam combining means (58) optically coupled to the first and second optical waveguides (46, 62) for producing a combined signal/pump beam, and means for optically coupling the combined signal/pump beam into an amplifying optical fibre (63). The output stage circuit (44) comprises a first output optical waveguide (64), an optical fibre attachment means arranged to receive an amplifying optical fibre (63) and an optical fibre attachment means arranged to receive an output optical fibre (76) wherein light from the amplifying optical fibre (63) is optically coupled to the output optical fibre (76) via the first output optical waveguide (64). The first and second optical waveguides (46, 62) and the first output optical waveguide (64) are hollow core optical waveguides formed as channels in a substrate. A fibre amplifier, in particular an erbium doped fibre amplifier, comprising such optical circuits is also described.



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